



Farm Power Lynden

Biodigester project in Whatcom County generates renewable electricity and heat, and reduces greenhouse gas emissions.

1934 South Wall St.
Mt. Vernon, WA 98273

Number of Employees: 2 Year Founded: 2009

Region Served:
Whatcom County

www.farmpower.com

Profile

Farm Power Lynden produces energy from what many would consider an unlikely source – cow manure. In a process known as anaerobic digestion, microbes produce biogas as they break down manure piped in from a nearby dairy. The biogas is burned in a generator to produce electricity that is sold under a 10-year contract to Puget Sound Energy.

Anaerobic digestion of agricultural waste is a proven and rapidly growing source of renewable energy generated at more than 150 other facilities around the country.

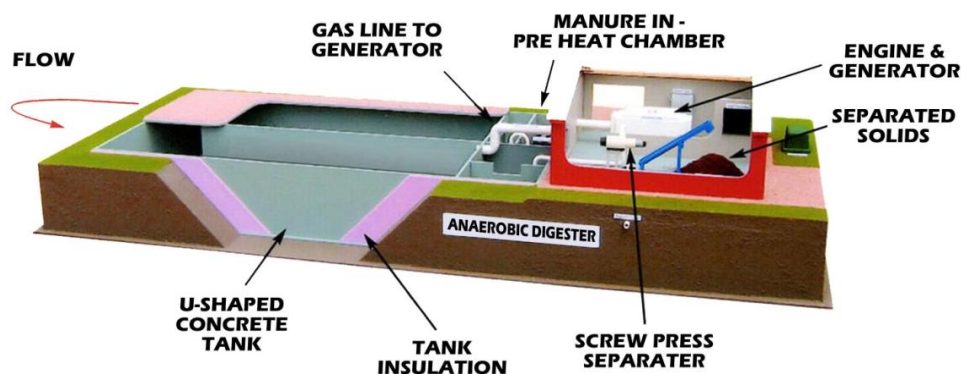
Brothers Kevin and Daryl Maas grew up in Mount Vernon with parents who had once farmed. Jobs initially took them out of the state, but in 2005 Kevin Maas returned to combine his commitment to the survival of family farms with his expertise in green energy technology.

In 2007 Daryl joined him, and together they formed Farm Power Northwest. This firm developed an independently owned and operated anaerobic digester project in the Skagit County community of Rexville – the first of its kind in the state.

A few years later they learned about the State Energy Program. They applied for and received a \$1.06 million Recovery Act grant from the Department of Commerce to construct a second digester near Lynden, a small town just south of the Canadian border.

Nearby MJD Farms, a dairy farm with over 2,000 cows, agreed to supply the manure – 70,000 gallons per day.

A biodigester is a heated vessel that processes dairy manure and other organic wastes in an



Digester diagram by Andgar Corporation



Department of Commerce
Innovation is in our nature.



U.S. DEPARTMENT OF
ENERGY



Farm Power Lynden generates enough power to meet the needs of 500 homes per year.

oxygen-free environment designed to induce digestion by anaerobic bacteria. After digestion, the fibrous solids are separated and dried, then returned to dairy farms for use as cow bedding. The digested liquid is also returned to farms, stored in lagoons and then spread on fields, providing nutrients for crop production.

Anaerobic digestion reduces insect larvae, bacterial pathogens, weed seeds, and odor in the manure. The digestion process produces methane-rich biogas, which is then burned in an engine generator to create electricity.

A closed-loop heat extractor allows the heat to be used for multiple purposes: to heat the digester vessel to sustain bacteria growth, to dry the fiber product, and to heat water that is piped to a large commercial greenhouse where it provides radiant floor heating.

Maas calculates that the greenhouse, owned by Van Wingerden Greenhouses, will save approximately \$30,000 per year in energy costs due to its participation in the digester project. The greenhouse employs 15 workers.

Farm Power Lynden generates over 6,000 megawatt hours of electricity per year, or up to 20 times the amount of power it needs to run its own operations. The excess electricity is sold to Puget Sound Energy under a 10-year fixed-price contract. Six-thousand megawatt hours is enough to power approximately 500 homes. “It does vary from day to day, but on balance, we will supply a relatively steady source of power,” said Maas.

The company also secured a 10-year Emissions Reduction Purchase Agreement with the Climate Trust, a nonprofit organization based in Portland, Oregon, which packages and sells carbon credits.

The Climate Trust sees biodigesters as a key means of reducing harmful greenhouse gas emissions.

Under the agreement with the Climate Trust, an independent consultant visits Farm Power Lynden once a year to test and verify the reductions in greenhouse gas emissions.

The methane emissions eliminated by the project are projected to reduce net annual greenhouse gas emissions by approximately 8,000 tons of carbon dioxide equivalent, the standard measurement of greenhouse gas emissions.

Farm Power is working to establish additional digester projects in the state. “The State Energy Program is outstanding,” said Maas, who added low-interest loans greatly help small businesses such as his.